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Guidelines for Drafting Liability Neutral Transportation Engineering Documents and Communications Strategies

This digest was prepared under NCHRP Project 20-06, "Legal Problems Arising Out of Highway Programs," for which the Transportation Research Board (TRB) is the agency coordinating the research. Under Topic 24-03, Terri Parker, Parker Corporate Enterprises, Nixa, MO, prepared this digest. The opinions and conclusions expressed or implied in this digest are those of the researchers who performed the research and are not necessarily those of the Transportation Research Board; the National Academies of Sciences, Engineering, and Medicine; or the program sponsors. The responsible program officer is Gwen Chisholm Smith.

Background

State highway departments and transportation agencies have a continuing need to keep abreast of operating practices and legal elements of specific problems in highway law. The NCHRP Legal Research Digest and the Selected Studies in Transportation Law (SSTL) series are intended to keep departments up-to-date on laws that will affect their operations.

Foreword

In the legal system, transportation engineering documents drafted by the transportation industry include manuals, studies, research documents, memoranda, and email. These documents are frequently used by litigants and courts as evidence bearing on the standard of care

or duties for transportation agencies sued for alleged negligence in operation of transportation facilities. The documents often use language and phrases such as "hazardous" and "high risk" that have pejorative meanings in the legal system as opposed to more neutral and objective language. Non-neutral language can increase the potential for transportation agencies to be determined to be liable for damages.

This digest presents legal language style and a drafting guide. The digest also addresses how to avoid concepts and language that can have legal implications by promoting clear, direct, objective, and fact-based expression.

This digest may be used as a practical resource for developers and reviewers of engineering documents, researchers, practitioners, and those who implement safety projects.

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CONTENTS

- I. Introduction, 3
 - A. Technical Instructions, Research Studies and Guidelines, 3
 - B. Internal and External Communications of the Agency, 4
- II. Consideration of Legal Issues Arising from Publications and Communications, 4
 - A. Language Found in Publications Intended for Internal Use, 4
 - B. Language Used in Communications of the Agency, 5
 - C. Industry Standards, 6
 - D. Agency Discretion and Engineering Judgment, 7
 - E. Standards of Care, 7
- III. Recommendations for Liability Neutral Documents and Communication Strategies, 8
 - A. Choosing Each Word Carefully, 8
 - B. Scheduled Policy Reviews, 12
 - C. Negligence Per Se, 12
 - D. Vague Phrases Should Not Be Used, 13
 - E. Protections Under 23 U.S.C. § 409, 14
 - F. Surplus Language, 15
 - G. Match Field Conditions to Language in Guidance, 18
 - H. Development of Liability Neutral Guidance, 20
- IV. Media Training, 21
- V. Recommendations for Liability Neutral Documents and Communication Strategies, 21
 - A. Choose Each Word Carefully, 21
 - B. Scheduled Policy Reviews, 22
 - C. Negligence Per Se, 22
 - D. Vague Phrases Should Not Be Used, 22
 - E. Protections Under 23 U.S.C. § 409, 22
 - F. Surplus Language, 22
 - G. Match Field Conditions with Language in Guidance, 22
 - H. Internal Communications of the Agency, 22
- VI. Conclusion, 22
- APPENDIX A—Survey Letter and Questions, 24
- APPENDIX B—Iowa Department of Transportation Five C's, 26

GUIDELINES FOR DRAFTING LIABILITY NEUTRAL TRANSPORTATION ENGINEERING DOCUMENTS AND COMMUNICATIONS STRATEGIES

Terri Parker, Parker Corporate Enterprises, Nixa, MO

I. INTRODUCTION

In tort law, the standard of care or the amount and kind of care that must be taken by an individual, agency, or business is determined by generally accepted practices of the industry. Within the transportation industry, state and federal departments of transportation (DOTs) and research practitioners set the baseline for reasonable and acceptable practices. These practices are established through policy manuals, safety research studies, and technical advisory documents that describe engineering and field methodologies. These documents include publications such as *A Policy on Geometric Design of Highways and Streets* (known as the Green Book) published by the American Association of State Highway and Transportation Officials (AASHTO) and the *Manual on Uniform Traffic Control Devices*, published by the Federal Highway Administration (FHWA). The documents are subject to frequent review and revision. This digest offers language drafting styles that can be used by technical writers, research investigators, academics, DOT practitioners, and those who implement roadway and safety projects. It is a practical guide to avoid concepts and language that give rise to legal liability.

One of the most effective methods for a plaintiff to establish a negligence claim against an agency is to demonstrate how the agency failed to design, maintain, or operate the roadway according to national guidelines or its own standards, procedures, or policy. During the pendency of a tort claim, language in the agency's policy that describes roadway features and operations will be examined closely by the parties. If the document contains imprecise guidance, unintended language, or opinions of the author, the agency may have provided a roadmap for plaintiff to successful litigation.

The documents may be called guidance or standards or policies. Technically, there is a difference in the definition of those terms. Guidance is typically understood to be advice which can be followed, but the application of that advice to a particular set of facts is not mandatory, suggesting an element of flexibility. A policy or standard must be followed unless flexibility is allowed or encouraged within the instruction. Because manuals and directives of the DOT are instructions to staff, those terms are used interchangeably in this digest. The terms "strategies" or "guidelines" or "toolbox" are often substituted for "policy" or "standard" and provide the agency with additional flexibility.

To obtain material for a portion of this digest, a review and analysis of multiple state and city DOT websites, research papers, and industry guidelines was conducted by the research panel. The panel reviewed DOT technical guidance, research

documents, and manuals and looked for examples of clear and accurate fact-based writing and for examples that were not fact-based, contained opinions, were unclear, and/or seemed likely to lead to litigation. Portions of the documents obtained through this research are analyzed herein. Based on survey responses and the litigation experience of the research panel, several engineering and operational topics that are frequently sources of litigation were selected for comparison and analysis. All the examples in this digest are taken from publicly available websites, although the agencies are not identified. These passages are illustrative in nature and almost every public agency has policies that could be improved by a review and rewrite.

Additionally, the attached survey (Appendix A) was sent to 50 states as part of the research plan. A 24 percent response rate was obtained, with several states providing insight into litigation experiences that involved the application of policy guidance that was problematic for the agency.

The premise of this digest is that vague or judgmental language should not be found in studies or instruction manuals. The opinion of the writer should not be apparent from the text. This publication contains a writing guide for technical and non-technical authors and those employees who interact with the public and the media. This digest will assist authors in avoiding concepts and language that have legal implications by promoting clear, direct, objective, and fact-based expression.

A. Technical Instructions, Research Studies and Guidelines

DOTs produce manuals and instructional documents that contain guidance to employees about many aspects of their jobs such as operations, maintenance of equipment, and design and construction of roadways. Safety studies and research documents are used in the same manner. These documents are an excellent resource and are used both in training and as permanent guidance in the field and in DOT offices. They are also a resource for parties to litigation involving the transportation agency. On occasion, those documents may contain language such as "hazardous" and "high risk" and "dangerous" that are terms of art and imply liability within the legal system. The language of the manual or policy may not be accurate or clearly explain the steps that should be taken by staff to ensure the expected outcomes. In other instances, words such as "required" or "must" or "shall" provide the agency with little flexibility to carry out its critical performance measures. Words and phrases such as "where feasible" and "as soon as practicable" and "may

be considered” allow the agency flexibility in scheduling repairs and implementing directives and guidance.

Inaccurate or improper use of commonly used terms can suggest liability on the part of the agency. Non-neutral, inaccurate language can increase the potential for a transportation agency to be at risk in litigation. This digest provides a writing methodology for drafting policies, asset management reports, manuals, guidelines, and studies to minimize the risk of litigation.

B. Internal and External Communications of the Agency

There are multiple methods of communication between public agencies, academics, and practitioners, and their target audiences, whether the audience is internal staff, external stakeholders, or media. Interaction with the public, public partners, and other practitioners is commonly done through press releases, emails, and social media as well as via documents such as asset management plans and projections for spending. Almost all written communications prepared within a public agency are accessible through public records requests and during the litigation process, so it is always important to use accurate and precise language and avoid language that contains opinions, inaccuracies, or conclusions. This digest provides assistance that can be used by communications staff when drafting communications.

II. CONSIDERATION OF LEGAL ISSUES ARISING FROM PUBLICATIONS AND COMMUNICATIONS

Before a negligence claim is filed against the agency, counsel for the plaintiff will likely review technical and engineering materials of the agency that may be related to the claim, as well as relevant research studies and industry publications. Counsel may also request documents such as emails, press releases, safety studies, roadway plans, and design calculations through the public records request process in order to evaluate a claim or potential claim. The decision to make a claim or file a lawsuit against the agency is typically made after counsel reviews these documents and the claim is at least somewhat dependent on the content of the agency’s documents.

The following sections provide examples of negligence claims against DOTs related to the agency’s alleged failure to follow its own written policies. Additionally, issues of industry standards and the importance of compliance with those standards are addressed. This information is included in this digest to deliver an understanding of the legal issues that are inherent in written guidance on engineering and transportation matters.

A. Language Found in Publications Intended for Internal Use

Agencies instruct their technical employees through internal publications such as “design guides,” “maintenance manuals,” or “traffic manuals.” Sometimes the manuals contain statements that are factually inaccurate or describe field processes inaccurately, or they describe processes that the agency intends to un-

dertake but has not yet implemented. The following paragraphs describe litigation involving DOTs that have been found legally responsible for incidents based in part on language contained in their internal publications.

Example A: Semadeni v. Ohio Department of Transportation

In *Semadeni v. Ohio Department of Transportation*,¹ Mr. Semadeni’s executrix brought a negligence suit against the Ohio Department of Transportation (ODOT) after he died from injuries he sustained while driving on Interstate 71 in Cincinnati, under the Blair Avenue overpass. A six-pound piece of concrete crashed through the windshield of his vehicle, striking him and causing the vehicle to go out of control. The concrete was dropped or thrown from the overpass by an unidentified person. The plaintiff claimed that Semadeni’s injuries and death were the direct and proximate result of ODOT’s negligent failure to install protective fencing on the overpass. Five years before the crash occurred, in response to repeated instances of objects being thrown from overpasses, ODOT had instituted a policy that required the installation of protective fencing on all existing bridges in Ohio that scored ten index points or more according to criteria established within the policy, unless “adequate justification for not doing so [could] be furnished.”² The evidence was uncontroverted that the overpass at issue justified a score in excess of ten points. In defense of the claim, ODOT argued that it had not had enough time to implement its new policy before the accident occurred and that it was not negligent. The court found that “in a nearly five-year period” after the implementation of the policy, “ODOT fenced only a small minority of the bridges which it had itself deemed to be in mandatory need of fencing, including the Blair Avenue overpass.”³ The court further found that ODOT did not establish funding for protective fencing anywhere in the state for over two years after the policy was instituted.⁴ After funding was established, the program funded only “ten percent of the qualifying bridges.”⁵ “ODOT’s agents and employees had a mandatory duty to complete its fencing within a reasonable time.”⁶ The installation of fencing on every overpass across the state of Ohio is an expensive and time-consuming process which logically spanned several years. The project involved “multiple steps, several districts,” more four hundred bridges that scored ten or more index point pursuant to the policy, millions of dollars, and numerous planning and engineering decisions.⁷ The case ended with a judgment against ODOT.

¹ 75, Ohio St. 3d 128, 661 N.E. 2d 1013 (1996).

² *Id.* at 132, 661 N.E.2d at 1017.

³ *Id.* at 133, 661 N.E.2d at 1017.

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

Analysis: When an agency institutes a policy that impacts multiple facilities in its system, consideration should be given to the inclusion of a schedule or timetable for implementation of the policy as a means to avoid liability. The agency must choose a reasonable implementation period based upon engineering judgment and availability of funds.

Due to the scope of the overall overpass project and ODOT's need to balance competing maintenance and construction priorities, the agency must have planned that the overpass work would be programmed in phases. The implementing language of the program and policy could have allowed for the work to be done as prioritized by the need for improvement based on objective criteria with a reasonable period of time for implementation. Another option for consideration in a situation such as this would be for the agency to use language in the policy that allowed the program to be implemented as funding became available.

Example B: Reynolds v. Kansas Department of Transportation

In *Reynolds v. Kansas Department of Transportation*,⁸ a case involving the Kansas Department of Transportation (KDOT), the department was sued after a cow passed through a hole in interstate fencing that was required by policy to be repaired "immediately" after damage to it was discovered. The cow escaped from private property that was adjacent to highway right-of-way and was struck by the plaintiff on the highway. One of the passengers in the plaintiff's vehicle was injured and another passenger died. Evidence at the district court trial indicated that the fence had been down for over a year. During that year, the highway was mowed, and other routine maintenance had been performed in the area. The jury heard testimony that indicated that KDOT was aware of the condition of the fence. KDOT maintenance staff testified that he "inspect[ed] the fences weekly from the road."⁹ A retired KDOT official opined that maintaining fencing was not a high priority in the field. "KDOT's official manual provides that the purposes of fencing are to control access, provide safety to traveling public, prevent indiscriminate crossing of medians or ramps by vehicles or pedestrians, and prevent encroachments on the right of way."¹⁰ The manual further provides, "Fences which have been damaged to the extent that their effectiveness is severely reduced should be repaired immediately. A temporary repair may be necessary until permanent repairs can be made."¹¹ "On appeal [in the Kansas Court of Appeals], KDOT argued that it did not owe a duty to [the plaintiff], and if it did, there was insufficient evidence [that] KDOT's failure to maintain its fence was the proximate cause of" the plaintiff's injuries.¹² The Supreme Court of Kansas found that KDOT had a common-law duty to protect the motoring public, and that one of the purposes of the installation of fencing

along the highway was to provide safety to the traveling public and that since the KDOT had undertaken the job of installing fences along the highway, it had a duty to repair it promptly. The court also noted that farmers relied on the state fences rather than installing private fences alongside the fencing owned by the state.¹³ The court reversed the Court of Appeals and upheld the district court jury verdict which had found KDOT to be 35 percent at fault in the accident.

Analysis: A conflict between written policy and the application of the policy in the field will usually be resolved in favor of the plaintiff rather than the DOT. Policy language must match the practices in the field. Language should be reviewed periodically for liability issues and to make sure that the written guidance is aligned with current practices and/or that current practice is aligned with written guidance.

B. Language Used in Communications of the Agency

Transportation agencies provide information to the public, stakeholders, and their own employees about transportation and infrastructure needs, the progress of projects, and many other day-to-day issues such as work zones and road conditions. These communications occur in a number of ways—press releases, interviews with media, social media, websites, public meetings, emails, and publications. These communications are preserved according to the agency's records retention policies and are typically available for review up to ten years after the communications are first published. Employees of the agency must choose their words carefully during an interview with the media and in any public forum. The information staff conveys will likely become available for viewing by the public, possibly shaping public opinion of the agency. Public statements that are taken out of context or given without attention to detail may end up costing a public agency hundreds of thousands of dollars in litigation.

Example A: Email

An attorney for a DOT who was involved with the acquisition of land from a homeowners association for a \$2 million frontage road sent an email to the head of the association that contained the following sentence: ". . . [the DOT] instructed me to point out that this project is for the benefit solely of the homeowners and expeditious execution would be appreciated . . ." after the agency and the neighborhood association were unable to agree to terms for the land needed to build the road. A newspaper article written about the situation, which included this email, indicated that several DOT staff members were opposed to the project because it did not serve a public purpose since it connected two neighborhoods and did not connect to a state road.

Analysis: Public funds must be used for public purposes. Information such as this, based on emails from counsel for the agency, puts the agency at risk for legislative and judicial review

⁸ 273 Kan. 261, 43 P.3d 799 (2002).

⁹ *Id.* at 263, 43 P.3d at 801.

¹⁰ *Id.* at 264, 43 P.3d at 801.

¹¹ *Id.* at 264, 43 P.3d at 802.

¹² *Id.* at 261, 43 P.3d at 800-01.

¹³ *Id.* at 266, 43 P.3d 803.

of funding formulas, new funding, audits, and the investigation of the agency for improper use of state funds. It puts the credibility of the agency at risk and opens it up to the potential for litigation accusing it of improper use of taxpayer funds. Emails are subject to public release and should not contain irrelevant material, unfounded assumptions, or statements that can lead to liability.

Example B: Conversational Tone

A transit agency used Twitter to respond to customers who were angry about a service disruption to explain the reasons for the unavailability of 50 railcars that had occurred due to planned maintenance. The agency spokesperson, in response to complaints from the public, explained that he was not interested in “sugarcoating a problem that was obviously disrupting lives” and explained the reasons for the delay and when the cars would be back in service.

Analysis: Policy is not made just by executive management. All government employees may be tasked with speaking on behalf of the agency at some point. The employee chose to use a conversational rather than adversarial or argumentative tone to discuss a controversial topic. Rather than avoiding the controversy, the employee addressed it directly, using words and phrases that a typical audience could understand. Even if the audience did not like the message that was delivered, it was delivered in a respectful, transparent manner and conveyed the message to the public that the agency heard and understood its concerns. However, a more effective means of communicating the agency’s concern and mission could have been to respond in this way: “The vehicles are out of service for short time due to planned and necessary maintenance. We expect this to be a minor inconvenience to system users who must make alternative arrangements.”

Example C: Offensive Remarks

A transit agency board member resigned after remarking, during a public meeting, that she would not hire an African American to lead the transit agency because of race relations in the community.

Example D: Offhand Comments

At a public meeting, a DOT engineer was asked to comment on a nearby intersection where several serious accidents had occurred recently. Members of the public were upset because a school bus had been struck by a truck and claimed that the intersection did not have appropriate sight distance. The engineer commented that the agency “had lots of those dangerous at-grade interchanges” and that the one at issue was on a list for potential upgrades. When the agency was sued about the accident, those comments were identified in the petition.

Analysis: The transit board member later clarified the remarks, explaining that it was difficult to be a public African American figure in the city, and that the environment in the city tended to limit upward progression for that population segment. However, the comments were deemed offensive by some members of

the community and the board member later resigned. The agency was exposed to potential damage to its public image as well as potential civil rights claims as a result of these statements.

In the DOT example, an offhand comment by an engineer subjected the DOT to liability. An appropriate response could have been “we have a program to improve at-grade intersections, but our budget only allows a few intersections to be funded in each budget cycle. Therefore, the intersections must be prioritized by level of need for improvement. Other intersections had a higher priority for improvement than the one involved here. This intersection will be addressed when projects at intersections with higher priorities have been completed.”

These examples illustrate the potential problems relating to agency officials or staff who speculate or provide opinions and conclusions rather than facts when discussing sensitive issues. Those issues may relate to an accident in a construction zone, the reason for a major project, or personnel choices. Department officials may not be prepared for media attention and provide inaccurate, senseless or misleading information. For this reason, the research panel suggests media training and review of the methodologies discussed in Section IV of this digest.

C. Industry Standards

When performing their work, state agencies follow established methodologies called “industry standards,” which are a set of criteria that describe the generally accepted manner of carrying out operations. These methodologies are guidelines such as the Green Book or the Manual on Uniform Traffic Control Devices (MUTCD). Policies and guidance implemented in roadway plans or in the field with the application of discretion or engineering judgment can lead to the agency adopting methods that are outside of generally accepted guidance or principles. These practices can be functional and legally defensible but should be documented in order to explain the application of engineering judgment to the situation. Some policies cannot be flexible and require strict adherence.

DOTs must balance cost and safety in their decision-making processes and are encouraged to use their discretion when developing and implementing guidance and standards. This concept is addressed in the text of the Green Book. The text reads “. . . the intent of this policy is to provide guidance to the designer by referencing a recommended range of values and dimension. Sufficient flexibility is permitted to encourage independent designs tailored to particular situations.”¹⁴ Both the MUTCD and the Green Book contain language that specifically provides for the application of engineering judgment by technical staff. However, any unreasonable or undocumented departure from established principles can result in a finding of fault against the DOT. The cases and manual excerpts summarized below describe issues that are frequently addressed during transportation litigation.

¹⁴ AASHTO, 2018 Policy on Geometric Design of Highways and Streets.

D. Agency Discretion and Engineering Judgment

The governmental agency's ability to use discretion and engineering judgment in its technical decision-making process was acknowledged by the court in *Rothrock v. United States*.¹⁵ Plaintiff Rothrock was injured when his car left the road on Interstate 65 in Indiana and rolled down a steep embankment. The plaintiff alleged that the accident was caused by the absence of a guardrail at the location where the vehicle left the road. A guardrail had been installed when the interstate was first built, but it was removed during a subsequent roadway resurfacing project. The plaintiff contended that FHWA was responsible for his injuries because it failed to ensure that guardrail was constructed in accordance with applicable AASHTO standards.

The court found the government to be immune from suit, reasoning that the FHWA is charged with balancing a mix of factors such as cost and safety, and therefore those decisions involved a discretionary judgment that should not be disturbed. The court stated "despite the alleged nonconformance with certain AASHTO standards, the FHWA is charged with balancing a mix of factors such as cost and safety. This is inherently a discretionary judgment involving the balancing of a mix of policy factors."¹⁶ The court noted that *Miller v. United States*,¹⁷ an earlier guardrail case, similarly involved the application of design discretion principles. The *Miller* court found that guidance contained within the Green Book, the MUTCD, and an NCHRP publication¹⁸ was subject to exceptions. The *Miller* court stated that

the determination to approve a project design that does not conform to the minimum criteria is to be made only after due consideration is given to all project conditions such as the maximum service and safety benefits for the dollar invested, compatibility with remaining sections of unimproved roadway and the probable time before reconstruction of the section due to increased traffic demands or changed conditions.¹⁹

In *Risner v. Ohio Department of Transportation*,²⁰ plaintiffs brought suit in the Court of Claims in Ohio after their daughter died in a car accident at the intersection of two state roads. The plaintiffs alleged that the Ohio Department of Transportation (ODOT) negligently designed and maintained the intersection and claimed that the department should have installed a three-light signal at the intersection instead of the flashing yellow and red lights that were installed as required by its internal policy. ODOT moved for summary judgment arguing that it had constructed the intersection according to design standards that were in effect at the time of construction and it did not have a duty to upgrade or change the intersection. The claims court granted ODOT's summary judgment motion, but the Court of

Appeals overturned the decision in part and the case was appealed to the Supreme Court of Ohio. In its discussion of the case, the Supreme Court of Ohio observed that ODOT's decision to improve a particular part of the intersection and its decision regarding what type of improvement was appropriate were within the agency's discretionary judgment and the agency was immune from liability on those counts. However, the court found that after ODOT decided to improve an existing highway, it had a duty to execute that decision in accordance with "current construction standards."²¹ *Risner* was remanded to the lower court for consideration of that issue.

Analysis: When a policy, guideline or standard allows the use of engineering judgment, an agency may be able to avoid liability in personal injury and wrongful death cases, assuming that it has acted in an otherwise reasonable manner. Documentation of the thought process and analysis undertaken by the agency during the decision-making process will aid the agency in defense of dangerous condition claims.

E. Standards of Care

The government is required to keep its roadways "reasonably safe."²² In most states, reasonably safe refers to its intended use. Reasonably safe may be defined in many ways, such as when a facility is in compliance with its own policies, in compliance with the MUTCD, or in compliance with a national standard such as a bridge inspection standard. The agency is expected to use ordinary care in its operations. Ordinary care is the standard of care or degree of care a careful and prudent person would exercise in the same or similar set of circumstances. An agency should typically expect its employees to exercise ordinary care and not expand or increase requirements upon its employees beyond the minimum that the law requires. If a standard of care other than "ordinary care" is used, documentation of the reasons for the actions of the employees should be made.

1. Negligence Per Se

"Negligence per se" is a doctrine that allows an agency or person to be found negligent when a law or regulation is violated. In Idaho, state law requires that the state highway department adopt a manual that is in substantial compliance with the MUTCD. The Idaho Department of Transportation has adopted such a manual. In *Jorstad v. City of Lewiston*,²³ the court determining that the manual had the "force of law"²⁴ and its contents

¹⁵ 62 F.3d 196 (7th Cir. 1995).

¹⁶ *Id.* at 199.

¹⁷ 710 F.2d 656 (10th Cir. 1983).

¹⁸ JARVIS D. MICHIE AND MAURICE E. BRONSTAD, LOCATION, SELECTION AND MAINTENANCE OF HIGHWAY TRAFFIC BARRIERS, (National Cooperative Highway Research Program, No. 118, 1971).

¹⁹ *Id.* at 662.

²⁰ 145 Ohio St.3d 55, 46 N.E. 3d 687 (2015).

²¹ *Id.* at 63, 46 N.E.3d at 695.

²² See, *Lavage v. City of Jefferson*, 262 S.W. 2d 60, 63 (Mo. App. 1953) ("It is the duty of a city to exercise ordinary care to maintain its streets in a reasonably safe condition for travel by those using them in a proper manner.") (emphasis added). See also, *Kyle v. Bogalusa*, 506 So.2d 719, 722 (La. App.1987) ("The state owes a duty to the traveling public to maintain the roadway . . . in a reasonably safe condition for vehicular use.") (emphasis added).

²³ 93 Idaho 122, 456 P.2d 766 (1969) (overruled on other grounds, *Independent Sch. Dist. v. Callister*, 97 Idaho 59, 539 P.2d 987 (1975)).

²⁴ *Id.* at 773-74.

applied to all state highways, found that failure by the city to follow the manual was negligence per se.

The court in *Bingham v. Idaho Department of Transportation*²⁵ emphasized the importance of the Idaho Department of Transportation's (IDOT) compliance with its manual (and state law) during its discussion of the methodology the agency used to determine a speed limit.²⁶ At issue was whether the speed limit was reasonable on a route that plaintiff alleged to be dangerous and the cause of injury. IDOT had obtained a summary judgment in the district court. Plaintiffs did not accuse IDOT of negligence per se in the pleadings, but merely claimed that the DOT failed to follow its own policy. The Supreme Court of Idaho stated that "the [district] court erroneously determined that it was discretionary for the Transportation Department to determine the speed limit and place traffic signs and other signals along" the highway.²⁷ "The Transportation Department's placement of a sign along a highway or the determination of a safe speed limit is not a policy setting activity; it is an implementation of regulations and policies that already exist. There are activities for which the department may be held liable if it fails to exercise ordinary care in carrying out these activities."²⁸ The court further commented that the district court should have evaluated whether the specific provisions of IDOT's manual had been followed before deciding whether the claim against the agency could be dismissed, rather than assuming that the manual had been followed simply because signs had been erected along the route that was the subject of the lawsuit.

Analysis: Negligence per se is the legal theory that if a violation of a law or regulation that is meant to protect the public, such as a speed limit or building code has occurred the person who committed the violation is at fault as a matter of law. If the agency violates internal policies which have been adopted as regulations, a court may find it to be negligent per se and responsible for an injury as a matter of law. In Idaho, as in other states, where the MUTCD has been specifically adopted by statute, a plaintiff is entitled to make the argument that a violation of the manual is negligence per se. Other DOTs, such as the Missouri Department of Transportation (MoDOT), have adopted a manual or guideline that is in substantial compliance with the MUTCD. If the manual is "guidance" rather than a directive required by state law, an agency such as MoDOT can use its discretion and engineering judgment in implementing the manual.

2. Potential Expansion of Established Standard of Care

An agency may unknowingly or unwillingly accept additional responsibility and liability through its actions, correspondence, or publications.

- a. State A discusses the legal standard of care that the DOT must use in its Traffic Engineering Manual. The manual reads:

[The state] MUTCD has been adopted by the State ... through a Commissioner's Order and applies to all public roads and private roads open to public travel in [the state]. As regulated, this requirement has the full force and effect of the law... a failure by government personnel in [state] to conform to the requirements of the state MUTCD may be sufficient to establish negligence (and therefore liability) should a crash result from failure to conform. On the other hand, as the state MUTCD only sets forth minimum requirements, compliance may not in itself be sufficient to establish reasonable care. If more than a "minimum" is required by a specific situation, it should be done.

- b. In a State B construction document, the DOT stated that it would "ensure" that a contractor's work environment was safe, and that it would make sure the contractor's employees followed safety rules, laws, and procedures. The family of an employee of the contractor involved in the construction project sued the state after the employee died in an accident in a construction work zone. The lawsuit that followed relied upon the documentation. A state employee had observed the decedent minutes before the accident occurred and failed to warn her that she was in a dangerous situation or remove her from the situation.

Analysis: The State A passage may create unintended liability for the agency by requiring it to exceed the usual "reasonableness" standard of care and should be deleted from the manual. As illustrated in the State B example, in some situations, an agency may be held to a stricter legal standard than the law in the state usually permits or a new duty of care may be established through the documentation and statements produced by the agency.

III. RECOMMENDATIONS FOR LIABILITY NEUTRAL DOCUMENTS AND COMMUNICATION STRATEGIES

A. Choosing Each Word Carefully

The intent of this digest is to encourage the use of liability neutral language in safety studies, research papers, and DOT policies and manuals. Phrases such as "hazardous" and "dangerous" tend to create the potential for liability due to the implications of the words that are used. The words "dangerous" or "unsafe" when used to describe a condition of the road imply that if the specified feature of the transportation facility is improperly maintained or in need of imminent repair, the road, rather than driver error, is at least partially at fault for an accident. Those words can imply that an agency is careless or negligent if it has not remedied the condition before an accident that may relate to the condition occurs.

While this guidance should provide flexibility to the practitioner, there are times that "shall" or "should" or "required" are appropriate and can be used to emphasize the importance of the provided instruction.

²⁵ 117 Idaho 147, 786 P.2d 538 (Id. 1990).

²⁶ The court discussed Idaho Code § 49-201(3) which required the department to adopt a manual in reasonable compliance with the MUTCD.

²⁷ *Id.* at 150, 786 P.2d at 541.

²⁸ *Id.* at 150-51, 786 P.2d at 542.

The following list of words is comprehensive, but does not include all the words that can create unintended liability or responsibility for an agency:

Better	Insufficient
Clearly	Is needed
Concern	Mandatory
Danger/Dangerous	Obstacle
Deficient	Poor
Edge/Shoulder Drop off	Problem
Ensure	Require
Essential	Risk/Risky
Excessive	Shall
Hazard	Should
Hot Spot	Trap
Imperative	Unsafe
Inadequate	Worse

Liability Neutral Words and Phrases

Even some “liability neutral” words may create liability for the agency, given the context in which they are used. Therefore, neutral words must be considered in context to determine the risk of liability with their use. A list of illustrative words that provide flexibility is provided below:

Application of engineering judgment	Guideline
As soon as practicable	May
Criteria/factors that may be considered	Normal
Consider	Potentially contributing factors
Can	Roadside “feature” or “condition” or “object” or “device” rather than “hazard” or “risk”
Candidates for shielding	Strategy
Could	Toolbox
Difference in elevation rather than edge or shoulder drop off	When/Where feasible
Factors that contribute to the probability	

Example A: American Traffic Safety Services Association (ATSSA)

ATSSA provides a work zone podcast series²⁹ titled “Work Zone Hazard Assessment: Identifying and Maintaining the Work Zone Clear Zone.” The stated purpose of the podcast is to “focus on raising practitioners’ awareness of how to remove, shield, or otherwise mitigate hazards within the clear zone.” Excerpts from that podcast are printed below:

Due to the dynamic nature of the work zone environment, recoverable designs are achieved first by not allowing unprotected **hazards** created by construction activities (such as **drop-offs**) within the work zone clear zone area and second by shielding unavoidable **hazards** like utility poles with positive protection devices. Traversable designs are achieved by maintaining the minimum allowable side slope of 1 to 3 in a **hazard-free** location that usually requires a significant roadside width for high-speed roadways.

So, what are the options for treating **hazards** in the work zone clear zone? Generally, you have three choices: relocation, mitigation, or shielding.

Relocation refers to **hazards** that can be moved. This would include stockpiled materials, parked equipment and vehicles, post-mounted signs, and other fixtures... For longer duration activities and for times when these **hazards** must remain in the clear zone because they are needed for work zone activities or because the location allows no other place to put them, it will be important to consider protection like portable concrete or steel barriers.

When relocation is not possible, mitigation, or doing things to make a **hazard** less **dangerous**, can be a good compromise between maintaining the work zone clear zone and shielding **hazards**. However, there are limitations that must be considered, including constructability, time duration, and roadway width and length. For example, constructing a 4 to 1 wedge of compacted surfacing material to smooth **drop-offs** may be possible with shoulder delineation and proper signing of the drop-off condition. The longer the duration of work, the more practical this approach becomes. Additional mitigation examples include:

Planned work operations that make use of existing barriers, wide shoulders, and an accessible roadside to eliminate the potential **hazards** of stockpiled material or equipment.

Work zone strategies that shift traffic away from existing or new **hazards**. For example, temporary lanes shifted onto an existing shoulder or temporary widening may create enough distance to provide for the clear zone.

Lastly, shielding, or applying protective devices to make a **hazard** less **dangerous**, is very common in work zones since the work zone itself often creates **hazards**. In addition, existing **hazards** in work zones must be shielded when relocation and mitigation are not possible... **Drop-offs**, equipment, and fixed obstacles such as lamp posts or large trees are just a few **hazards** that can have a **dangerous** impact on vehicles that **accidentally** intrude into the work area.

Analysis: ATSSA is an organization that provides the transportation industry with roadway safety training programs, certification opportunities, and instructional publications. Many state

²⁹ *Work Zone Hazard Assessment: Identifying and Maintaining the Work Zone Clear Zone*, reviewed August 2, 2019, https://www.workzonesafety.org/training-resources/fhwa_wz_grant/atssa_wz_clear_zone_podcast/.

and local DOTs use ATTSA materials and training courses as the basis for their employee training and in addition, require the contractors who work on their roads to have certifications that can be obtained from ATTSA. Their publications and training programs are considered authoritative in the industry.

The words “dangerous” and “hazard” suggest that if a feature or condition of the road is not properly maintained, the road may be at fault for an accident. Those words can further imply that an agency is careless or negligent if it has not remedied the condition before an accident that is potentially related to the condition occurs. When an organization such as ATTSA admits on behalf of the industry that work zones create a dangerous condition of the roadway, it creates a liability risk for transportation agencies. Those words could be replaced with “liability neutral” words such as “conditions” or “objects” as identified below. In the example below, the intent of the guidance does not change, but the language in the new guidance is liability neutral.

The podcast could be reworked as shown below:

Due to the dynamic nature of the work zone environment, recoverable designs are achieved first by not allowing unprotected hazards conditions created by construction activities (such as drop-offs) (such as a differential between the elevation of the roadway and the shoulder of more than two inches) within the work zone clear zone area and second by shielding unavoidable hazards-conditions like utility poles with positive protection devices. Traversable designs are achieved by maintaining the minimum allowable side slope of 1 to 3 in a hazard-free location that usually requires a significant roadside width for high-speed roadways.

So, what are the options for treating hazards objects or devices in the work zone clear zone?

Generally, you have three choices: relocation, mitigation, or shielding.

Relocation refers to hazards features that can be moved. This would include stockpiled materials, parked equipment and vehicles, post-mounted signs, and other fixtures. ... For longer duration activities and for times when these hazards features must remain in the clear zone because they are needed for work zone activities or because the location allows no other place to put them, it will be important to consider protection like portable concrete or steel barriers.

When relocation is not possible, mitigation, or doing things to make a hazard shield a feature or condition less dangerous, can be a good compromise between maintaining the work zone clear zone and shielding hazards objects in the work zone. However, there are limitations that must be considered, including constructability, time duration, and roadway width and length. For example, constructing a 4 to 1 wedge of compacted surfacing material to smooth drop-offs differences in elevation between the road and shoulder may be possible with shoulder delineation and proper signing of the drop-off condition. The longer the duration of work, the more practical this approach becomes. Additional mitigation examples include:

Planned work operations that make use of existing barriers, wide shoulders, and an accessible roadside to eliminate the access of the motorist to potential hazards of stockpiled material or equipment.

Work zone strategies that may include shifting traffic away from existing or new hazards. For example, temporary lanes shifted onto an existing shoulder or temporary widening may create enough distance to provide for the clear zone.

Lastly, shielding, or applying protective devices to make a hazard less in the area of work dangerous, is very common in work zones

since the work zone itself often creates hazards. In addition, existing hazards objects or conditions in work zones must be shielded when relocation and mitigation are not possible. ... Drop-offs Differences between road and shoulder elevation, equipment, and fixed obstacles objects such as lamp posts or large trees are just a few hazards items that can have a dangerous impact on vehicles that accidentally intrude into the work area.

Example B: Guardrail Advertisement.

The DR-46 Motorcycle Barrier sold by Lindsay Corporation is intended to protect motorcyclists from injury if they strike the guardrail. It attaches to standard roadside guardrail and can protect errant motorcyclists from the guardrail post during a fall or collision. The following text is found on Lindsay's website:³⁰

The use of the DR-46 MBA under guardrail reduces the risk of the motorcyclist impacting dangerous guardrail posts.

Analysis: The word “dangerous” should never be used in the description of a product, especially one that is being marketed to highway agencies for use on their guardrail systems. Lindsay Corporation also sells guardrail, so in effect it is admitting that the use of one of its products can make another of its products dangerous. The sentence could be revised in the following manner:

The use of the DR-46 MBA under guardrail reduces the risk likelihood of the motorcyclist impacting dangerous guardrail posts.

Example C: Guardrail Installation and Length of Need.

A study from a transportation research facility regarding guardrails as well as a joint project between State C and others are discussed below. Changes to the language used in the study and projects are suggested below. Some agencies no longer use the term “guardrail” and use the term “guiderail” instead, as the word “guiderail” is considered to be more descriptive of the purpose of the hardware.

In 2014, a study of the appropriate length of need for guardrails was conducted by a research facility. The purpose of the study was to determine whether the recommendations of the Roadside Design Guide (RDG) relating to appropriate guardrail length were in fact, appropriate, or whether RDG calculations produced guardrails that were too long. Throughout the report, reference is made to “hazards” on or off the roadway that require shielding or protection such as culverts, poles and steep slopes. For example, in the summary, the following sentence can be found:

[b]oth impacts with the shielded hazards involved secondary hazards only; the primary hazard which warranted shielding was never impacted.

Analysis: The word “hazard” is used hundreds of times in the report. This aspect of the document is not helpful for the agency, as it reinforces the idea that guardrails are or can be dangerous. To make this document more liability neutral, each time, the word “hazard” is used it could be replaced with the word “object” or “feature” or “item.” If “object” doesn't fit the context, an-

³⁰ Barriersystemsinc.com. (Last visited July 23, 2019).

other word such as “condition” could be used. Descriptive words such as “pole” and “culvert” and “slope” could also be used. The example sentence from the study could be rewritten as follows:

[b]oth impacts with the shielded ~~hazards~~ objects involved secondary ~~hazards-objects~~ only; the primary ~~hazard~~ condition which warranted shielding was never impacted.

State DOT C’s *Roadside Safety Field Guide* is a guide that combines sections of a design manual and a construction manual to assist field employees in installing roadside hardware. It poses questions presumably to assist in evaluating conditions and determining what actions should be taken. The technique is as follows:

When reviewing proposed and existing barrier installations in the field, we need to ask ourselves the following questions:

1. Is the guardrail system more hazardous than the condition that is being shielded?
2. Is an existing guardrail installation still warranted?
3. If the guardrail is installed as originally planned, is there a possibility of the motorist still reaching the hazard?
4. Can the guardrail be extended to shield a secondary obstruction?
5. Are there any vertical obstructions within the guardrail system’s design deflection?
6. Is the guardrail ending within 200 feet of another guardrail run that could be connected?
7. Is the guardrail terminating within 200 feet of a cut slope?
8. Does the slope need regrading?

Analysis: The question and answer methodology can elicit helpful information for the practitioner to consider. If the agency uses this methodology, question one could be rewritten as follows: Would the consequence of striking the guardrail be less severe than striking an object next to the roadway? In question three, the word “hazard” could be replaced with “object that is being shielded” or simply “the culvert” or “signpost.” However, even with the wordsmithing, the guidance is still not entirely clear, because there is no direction about the action that should be taken if all the questions are answered with a “yes.”

Factual information and descriptions that allow the practitioner to use engineering judgment to make a decision are useful to the technical writer and allow the use of discretion in the performance of the work. The passage could be rewritten as statements or conditions to be considered, as follows:

When reviewing proposed and existing barrier installations in the field, ~~we need to ask ourselves the following questions~~ the following items may be considered, and changes made to the plans if warranted by the application of engineering judgment:

1. The potential severity of striking the guardrail vs. the potential severity of striking the object next to the roadway.
2. The likelihood of a motorist reaching the object if the guardrail is installed as originally planned.
3. Extension of guardrail to shield a secondary object.
4. Whether the guardrail continues to be warranted.

5. Vertical objects within the guardrail system’s design deflection.
6. Nearby guardrail that could be connected with another guardrail run.
7. Termination of guardrail within 200 feet of a cut slope.
8. Regrading or shaping of the slope.

Example D: Clear Zones.

The clear zone is generally considered to be a roadside area that is free of fixed objects that can provide an area for an out-of-control driver to regain control of the vehicle. The concept is used to determine an appropriate “clear” distance from the edge of a traveled lane of the roadway. It can also be used for roadway design purposes and determining an appropriate area for workers in a work zone.

City A states as follows in their policy:

ROADWAY CLEAR ZONES

On rural local streets the clear zone shall be 6 feet, and on rural collectors the clear zone shall be 11 feet.

Where hazards are within the clear zone, guardrail or barrier wall shall be provided at least 6 feet off the traveled way.

For urban sections the clear zone is 4 feet from face of curb. On urban local streets the clear zone may be reduced to 2.5 feet under unusual conditions.

Analysis: The use of the word “hazard” provides the reader with the suggestion that a condition or feature is unsafe, and that condition may become the target of litigation, as discussed above.

The use of “shall” and “should” terms is an important judgment decision to be made by the agency as some conditions merit the strict adherence to a guideline. Those words could be replaced with “may” if the agency chooses to allow flexibility but believes it must require a clear zone. The terms “should” and “shall” are mandatory and require the agency to perform or implement the identified actions or guidance. If the enumerated actions are not done, the agency is out of compliance with its policy or guidance and will be presumed negligent. The decision to use a “shall” condition in the guidance should be made only with an application of engineering judgment.

“Under unusual conditions” is a vague phrase and leaves the reader to determine what types of conditions are unusual.

A technique is shown below where the text is changed to suggest that the practitioner use engineering judgment to determine the optimal clear zone width. The language could be modified in this way:

ROADWAY CLEAR ZONES GUIDANCE

On rural local streets ~~and rural collector routes~~ the clear zone ~~shall~~ provides a benefit to the driver, ~~be 6 feet, and on rural collectors the clear zone shall~~ may be 11 feet.

Rural local streets have a clear zone of 6 feet, subject to the geometrics of the road and engineering judgment.

Rural collector routes have a clear zone of 11 feet, subject to the geometrics of the road and engineering judgment.

Where hazards objects are within the clear zone, guardrail or barrier wall shall be provided should be considered at least 6 feet off the traveled way.

For urban sections, the clear zone is 4 feet from face of curb. On urban local streets the clear zone may be reduced to 2.5 feet under unusual conditions as determined with the application of engineering judgment.

Documentation of any departure from this guidance by the roadway designer should be kept with the project file.

B. Scheduled Policy Reviews

Instructional manuals should be subjected to scheduled comprehensive reviews. The agency should look for information that is confusing or inaccurate and ensure that the processes that were in place at the time the guidance was initially written are still in place. Technical documents should be reviewed by engineering or other technical staff to verify compliance with generally accepted engineering practices. In addition, staff who implement the policy should be involved with its review to ensure that the guidance, as contemplated, can be or has been implemented in the field. Legal counsel should also be actively involved in revisions of policy, especially when the agency is considering changing descriptions of techniques, guidance or concepts that are frequently the subject of litigation.

Example A: Irrelevant Content.

This text is taken from State D's construction manual:

The same inspector should generally not be utilized on successive jobs with the same contractor. Certain personal relations and precedence can be established which may not be in the best public interest. However, it is sometimes desirable to assign the same inspector on successive jobs with the same contractor because of the inspector's availability, knowledge, experience, and capacity for handling successively similar types of work. Such assignment, if made, should be based on the individual inspector's record of unqualified integrity and ability to provide firm, fair, equitable and proficient engineering inspection.

Analysis: A plaintiff's attorney could frame his or her entire theory of a case around this passage. Issues related to "personal relations" should be addressed by the Human Resources department rather than found in a policy manual. The passage reads as if the state assumes that its inspectors are going to or already have developed close relationships with their contractors and that the professional judgment of their employees is compromised due to those relationships. The passage could be modified as follows:

~~The same inspector should generally not be utilized on successive jobs with the same contractor. Certain personal relations and precedence can be established which may not be in the best public interest. Construction inspectors are not typically assigned to perform inspection functions for a contractor on successive jobs. However, it may benefit the state to assign the same inspector on successive jobs with the same contractor because of the inspector's availability, knowledge, experience, and capacity for handling successively similar types of work. Such assignment, if made, should be based on the individual inspector's record of unqualified integrity and ability to provide firm, fair, equitable and proficient engineering inspection.~~

C. Negligence Per Se

The legal doctrine of negligence per se should be considered in the evaluation of manuals, research studies, and policies. An act of an agency employee may be considered negligent because that act violates a rule, regulation, or law. If a policy or manual has the effect of a rule within an agency or has been adopted as a regulation, violation of the policy language may equate to negligence per se, which subjects the agency to liability as a matter of law if policy language or the regulation is not followed.

Example A: State E Traffic Engineering Manual.

The traffic engineering manual was adopted by the state through a Commissioner's Order. According to the text of the manual, it has the full force and effect of law. It contains a six-page section on tort claims, including a discussion of the basic characteristics of a tort, legal duties, immunities, and negligence. This discussion, for the most part is informative on the law and does not impact the liability of the agency. The last sentences, however, reads as follows:

A failure by government personnel [the state] to conform to the requirements of the MUTCD may be sufficient to establish negligence (and therefore liability) should a crash result from failure to conform. On the other hand, as the MUTCD only sets forth minimum requirements, compliance may not in itself be sufficient to establish reasonable care. If more than a "minimum" is required by a specific situation, it should be done.

Compare the State E passage to the federal MUTCD,³¹ which states the following:

The Manual on Uniform Traffic Control Devices (MUTCD), by setting minimum standards and providing guidance, ensures uniformity of traffic control devices across the nation.

Further compare the following passage that is found in the State F design manual:

The geometrics of a roadway consist of its horizontal alignment, vertical alignment, and cross section elements. The [DOT] has accepted the American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (Green Book) as its standard for geometric design. For projects on the interstate system, AASHTO's A Policy on Design Standards - Interstate System supplements the Green Book.

Designers are directed to the above-referenced documents for geometric design criteria. This chapter does not attempt to restate criteria contained in the Green Book; rather, it provides criteria specific to the DOT where it is different or more limiting than what AASHTO allows. In instances where these criteria cannot be met, Chapter 210 of the Design Manual describes [the DOT's] documentation procedures for design exceptions and design variances.

Analysis: The language used in the State E manual requires the agency not only to comply with the language of its internal MUTCD but to exceed it on occasion. The law merely requires reasonable behavior or "ordinary care" as noted in section II D. The manual language puts an additional and unnecessary burden on the employees who are obligated to comply with it, whether or not they are aware of it. The language used in the

³¹ MUTCD Overview, <https://mutcd.fhwa.dot.gov/kno-overview.htm>, (last visited June 15, 2019).

State F design manual and the MUTCD are simply explanations that do not carry any obligations for staff or the agency other than to comply with the generally accepted industry practices. State E creates a legal standard for the employees of the agency to follow that may be unattainable. It should be deleted and language that provides options, based on engineering judgment, should be used if the passage is to remain in the guidance at all.

D. Vague Phrases Should Not Be Used

Phrases such as “consideration should be given” and “wherever possible” may appear to provide flexibility to an agency. Even though they seem to simply emphasize the importance of the instruction, they also in essence require action to be taken. Factual information and descriptions that allow the practitioner to use engineering judgment to make a decision are more useful to the writer and allow the use of discretion in the performance of the work.

Example A: Fencing

Many states require their miles of interstate to have state-maintained fencing while highways such as freeways or rural routes may but are not required to have fencing. Fencing is used primarily to restrict access to the roads by unauthorized vehicles, pedestrians or animals. The state exposes itself to potential liability if it publishes guidance or standards that require it to install and maintain fencing in a particular manner and then fails to comply with its own directive. Excerpts of the internal fencing policies of three different states are compared and analyzed below, illustrating the possibilities for liability, followed by a proposed model policy.

STATE G HIGHWAY FENCING POLICY

PURPOSE

Fencing is one means of delineating and preserving the acquired control of access for a highway. **It should be noted** that right of way markers or controlled access signs may also be used with or without fence to identify the access control line.

POLICY

Access control fencing shall be placed along the access control line as may be shown on highway plans for Interstate highways and other full-access control highways **where it is determined to be necessary** to preserve access control.

Fencing may be placed on the access control line for other partial access control highways **where it is deemed appropriate** to delineate access control.

Any changes in the fencing, after the fencing review, shall be documented and maintained in a permanent record.

Access Control fence is owned and maintained by DOT only for the purpose of delineating access control. Although adjacent property owners are permitted to pasture livestock against this fence, DOT assumes no responsibility for constructing or maintaining a livestock-tight fence.

STATE H FENCING POLICIES

Purpose: To establish a **policy** for the Department of Transportation for the proper construction and maintenance of right-of-way fence.

Fully Controlled Access Highways:

Continuously fence all fully controlled access highways (Freeways) **unless it can be definitely established that a fence is not necessary**, such as in areas of precipitous slopes, other natural barriers or sound walls placed adjacent to the right-of-way line. The Department owns and maintains all fencing installed on this type of roadway.

Use the lowest cost of the types shown on Department Fence and Gates (FG) Series Standard Drawings or in the Plan Set in other areas of development within the State that fulfill the following purposes:

- Prevent animals from entering upon the highway right-of-way.
- Keep children and pedestrians off the highway.
- Prevent vehicles from entering or leaving the right-of-way at unauthorized locations.

Compute the lowest cost considering the cost of installation, future maintenance, and the likelihood of future changes in the use of the adjacent property.

All fencing provided on uncontrolled access highways, **except special fencing**, becomes the property of the adjacent landowner and is maintained by that owner.

Place fences that are to be maintained by someone other than the Department directly on the right-of-way line. Place this fencing one foot inside the right-of-way line **if for some reason the Department** agrees to the maintenance of fencing in uncontrolled access areas. Place the fencing in accordance with the policy of the local authority on local governmental agency projects.

The Department, when fencing, **regardless of specific ownership**, is damaged by an errant vehicle that has left the pavement of a State Highway and livestock is present, is authorized to give notice to the property owner; notify HP; complete a temporary repair while the owner is responding; and repair the fence **if the situation seems too dangerous**. The property owner or damaging party will be billed for the repairs. Repairs made to non-Department fence will meet the minimum Department standards.

STATE I MAINTENANCE MANUAL

Inspection and Repair of Fences and Gates

- Activity Description. This activity includes maintaining or replacing fence posts, top rails, and gates of department-owned fences. Interstate fencing is the responsibility of DOT. All other fences are the landowner's responsibility unless a right-of-way agreement states otherwise. Cleaning dirt and materials from state-owned fences is included in this activity.
- Purpose. The purpose of this activity is to protect the safety of the public by keeping livestock off the highway and ensuring that controlled access is maintained.
- Timing of Maintenance. Fences should be inspected twice a year and needed repairs and maintenance scheduled. Fence and gate damage should be scheduled for repair as soon as practical.

Analysis: The aspects of these policies which may put the agencies at risk are three-fold: determination of which highways must have fencing; timing of the maintenance of the fence; and phrases which may be vague or difficult to understand. The pol-

icy of state G provides the DOT with flexibility regarding initial placement, based upon a decision of whether fencing is needed for access control. The policy does not require fencing on any particular type of highway, such as interstate or freeway. The language makes it clear that the fence is used for access control purposes only “where it is determined to be necessary,” but does not explain how to determine where it is necessary. State H, on the other hand, commits to fencing all freeways and commits to the maintenance of all its fencing. State I sets a specific schedule for fence inspection (twice a year), but provides flexibility within the policy to allow repairs to be done “as soon as practical.”

State H instructs its staff to repair a fence “if the situation seems too dangerous.” When the word “dangerous” or “hazardous” is used, maintenance staff is left to determine how dangerous is “too dangerous.” And who has to decide when it’s “too dangerous?” How and when is that decision made?

State H’s policy contains language that is not clear: “[t]he Department, when fencing, regardless of specific ownership, is damaged by an errant vehicle that has left the pavement of a state Highway and livestock is present, is authorized to give notice to the property owner; notify HP; complete a temporary repair while the owner is responding ...” This sentence is critically important to the process and should be changed to identify the parameters of the agency’s responsibility.

Fencing can be difficult for staff to maintain, especially when a DOT is responsible for thousands of rural miles that are not frequently traveled by its staff. State H accepts maintenance responsibility only for interstate and requires the adjacent property owner to maintain any fencing that is placed on non-freeway right-of-way. That state must make sure that the adjacent property owners are informed of their obligations if the passage is to be enforceable. The policy also states that the property owner is not responsible for maintenance if “for some reason, the Department agrees to the maintenance of fencing.” This phrase indicates a departure from the established practices and creates potential confusion for maintenance staff. Unless the department has established a plan to document all locations where it has agreed to maintain non-interstate fencing, those locations may be overlooked and not maintained as contemplated.

Two of the policies contain documentation requirements. One requires documentation of the decision to make fencing changes and another contemplates the possibility of a right-of-way agreement that may shift the responsibility of maintenance of the fence from an adjacent landowner to the state. Documentation requirements in the policies create a need to keep the documentation in a place that can be located and reviewed on a frequent basis. Because DOTs are subject to frequent staffing changes, it is important for the agencies to find a way to make sure that new staff is aware of the maintenance obligations that stem from policy language.

These policies could be rewritten as follows:

MODEL POLICY:

Fencing on the right-of-way line accomplishes several purposes: prevention of encroachment, access control, and preservation of the government’s property lines. Access control is used to prevent bicyclists

and pedestrians from entering or leaving the highway at unauthorized locations. Right of way markers or controlled access signs may also be used with or without fencing to identify the property lines.

Any portion of a highway may be fenced, although fencing is not required in areas of precipitous slopes, natural barriers or in other areas fencing is not required to preserve access control. Fencing is usually located at or near the right of way line. In areas where frontage or outer roads are present, the fencing is typically placed in the area between the highway and outer road. Fencing for access control is usually owned by the agency so that the agency can control the type and location of the fence.

Inspection of the fence line by DOT staff should occur on a regular basis. Maintenance and repairs should be scheduled for repair as soon as practicable.

Example B: Bicycle Warning Signs.

State J’s traffic manual contains instructions about the proper placement of bicycle warning signs and reads as follows:

To have maximum effect, these signs are to be used with discretion only at locations **that have a problem** and only where one or more of the following criteria are met: **safety problems** when the road cannot be improved for bicycle features; where there is high bicycle volume; **where there is a conflict or obvious courtesy problem** between car and bicycle sharing the road.

Analysis: The agency has admitted it has a “problem” at certain locations. In the legal world, this statement is akin to admitting that a location with a “bicycle warning” sign is not safe. The word “problem” itself is vague because the reader is left to her or his own interpretation of what kind of “problem” can be expected in this situation. Similarly, the meaning of the phrase “obvious courtesy problem” is open to speculation. Instead of using the word “problem,” the first part of the passage could be modified to specifically identify the situations, perhaps with a list, in which the bicycle sign could be used. The phrase “obvious courtesy problem” should be removed and replaced with examples of the behavior that can cause the issues that are identified in the section. The passage could be modified as follows:

The bicycle warning sign is used to indicate to the driver that there may be bicycles in the road. Bicycles may be crossing or entering the roadway. Bicycle warning signs may be considered, in conjunction with the application of engineering judgment, at locations that meet one or more of the following criteria:

- The average daily count of bicycles exceeds X; or
- There is a documented history of collisions involving bicycles and vehicles which exceeds X; or
- Shared use of roadway by bicyclists and vehicles may occur.

E. Protections Under 23 U.S.C. § 409

Studies which contain information that an agency has gathered to evaluate highway safety appurtenances may be helpful to the agency in identifying areas that require attention such as improperly placed guardrail posts or guard cable that has not been properly maintained. However, studies that identify sub-standard conditions (or conditions that may benefit from an improvement) of the roadway are pure gold to a lawyer representing a plaintiff in a negligence case against a government

agency. 23 U.S.C. § 409 protects reports, surveys, schedules, lists, or data that has been compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railroad-highway crossings. Even though a study or report itself is protected from admission into evidence in litigation, the data found in the report could be independently verified by plaintiff's expert. Therefore, safety studies in the custody of a DOT should not be published or allowed into the public domain.

Example A: Cable Barrier Policies and Research Studies.

Cable median barrier is widely used around the county to prevent errant vehicles from crossing medians and striking vehicles in opposing lanes of traffic. It is credited with saving thousands of lives since DOTs started using it in the mid-2000s. Several publications which relate to the maintenance aspects of cable barrier were reviewed for this report. The publications included in-service evaluations and DOT maintenance policies. A study commissioned by a state DOT and performed by its state research university are analyzed below, as is a research report prepared by state K's research and technology section.

The research study was performed by staff at the university in response to a request by DOT officials to compare the in-service functions of cable barriers purchased from three different manufacturers. The stated purpose of the report was to "increase the safety and effectiveness of [the DOTs] barrier system." Multiple deficiencies of the installed barrier systems were identified in the report. For instance, the following summary is found in the text:

The primary CMB (cable median barrier) installation deficiencies by brand include:

Briften:

- Insufficient post spacing for in-line posts
- Insufficient post spacing for end posts
- Rope heights exceed tolerance
- Insufficient weakening cuts for the end treatment posts

Gibraltar:

- Insufficient post spacing for in-line posts
- Insufficient post spacing for end posts

Analysis: Wordsmithing cannot fix this report. These comments from the research report create a roadmap for liability if a median crossover accident occurs. Non-compliance with installation guidance provided by the manufacturer is fatal to the defense of a median crossover failure claim. The report should not have simply concluded that there were "insufficiencies." Instead, it should have described each of the "insufficiencies" with objective measurements that would have informed the DOT of the specific conditions that were identified in the field. If the agency required an evaluation of the barrier cable that could be released to the public, the entire perspective of the report should be changed. A report that is published on an agency website should contain only facts and recommendations that are based on the objective measurements discussed in the report. Recom-

mendations, such as additional guidance and training, can be made, but specific examples of non-compliance with industry guidance should never be used in a report that is intended to be released outside the agency.

Example B: Guard Cable Evaluation Report

The guard cable evaluation report prepared by a research department of State K addresses the issue of soil, footings, and repair response times. In the "recommendations" section, the following information can be found:

Footings Concrete Pours: A better method for placing the concrete in the augured holes should be developed ... it is likely that the sides of the hole are collapsing ... the footing will not have the expected resistance to rotation on impact.

Anchor Footings: Based on the problems encountered during the repair of the end section, a detail should be developed ... to maintain clear access to shear bolt holes ... instead of an individual foundation for each anchor point, a single block be cast. This would have to be accepted by the manufacturer, to assure that the crashworthiness of the system is not negatively affected.

Repair Response Time: Given the current intervals between an accident and the repair of the damaged section it is suggested that a departmental policy for a time frame to repair the guardrail be put in place ... While damage that does not involve the end sections does not prevent the system from serving its intended purpose, the effectiveness can be reduced, especially in locations more prone to impacts.

Analysis: This document contains important information that is useful to the agency, although words such as "problem" and "better" should be avoided since they are vague and suggest the opinion of the writer. A study that contains data such as appropriate soil conditions and corrosion systems can be beneficial to the agency in order to improve the function and operation of the system. The document itself, the information contained within it, and the recommendations are all protected by 23 U.S.C. Section 409 and should not be released to the public. This analysis is subject to the review of each state records disclosure law as data, but not the report itself.

F. Surplus Language

Surplus language can be words that are redundant or duplicative or words that seek to explain a concept that does not require explanation. Surplus language can impact the clarity of an idea or provide a plaintiff's lawyer with a theory of negligence that would not have been apparent from a clearly written sentence.

Example A: Shoulder Width.

Highway shoulders have a substantial impact on roadway operations and the safety of the road. Shoulder width is one of the Green Book's ten "controlling criteria" for interstate and other high-speed roads such as freeways. Because shoulders impact the ability of the motorist, pedestrians and bikers to use the road, the selection of the appropriate shoulder width is an important planning component during the design phase of a road as well as during the consideration of a rehabilitation project.

The policies of State M, State N, City B and State O are considered below.

State M's policy reads as follows:

Shoulder Width

- For higher speed, high volume roads, the DOT has adopted ten feet as the normal shoulder width.
- For low-volume roads, a minimum shoulder width of two feet is required, though six feet to eight feet is preferable.
- Where bicycles and/or pedestrians are to be accommodated on shoulders, the minimum usable width (i.e., clear of rumble strips and gutter pan width) is four feet.

Analysis: This policy is short and provides appropriate and easy to understand guidance to the designer. For this analysis, it is assumed that low and high volume are defined elsewhere in the policy. The passage would benefit, however, from this change:

For low-volume roads, a minimum shoulder width of two feet is required, though six feet to eight feet is preferable typically used as allowed by roadway geometrics. If six feet are not available due to the limitations of the road, engineering judgment should be used to determine an appropriate width.

State N's policy is found below:

Width of Shoulders. **Desirably**, a vehicle stopped on the right shoulder should clear the pavement edge by at least 1 foot, preferably by 2 feet. On land service highways, **in difficult terrain**, or in areas where right of way is restricted due to roadside development or environmental factors, a minimum 8-foot-wide shoulder may be provided. On 3R projects, the existing shoulder width may be reduced to 8 feet to provide wider lanes. New or reconstructed shoulders on heavily traveled and high-speed land service highways, especially those carrying large numbers of trucks (250 DHV), where turning volumes are high or dualization is anticipated, should have usable shoulders at least 10 feet and preferably 12 feet wide. Shoulders should be provided adjacent to all new acceleration and deceleration lanes at interchanges, where practical, in major new construction or reconstruction projects along major land service highways having an AADT of 10,500 per lane (DHV of 1,500 per lane) or greater, for the project design year.

"Practical" is defined as given consideration to social, economic, and environmental impacts in concert with safe and overall efficient traffic operations. Shoulder widths on freeways and Interstate highways **shall** be 10 feet minimum. However, where truck traffic exceeds 250 DDHV, a 12-foot shoulder should be provided.

A 10-foot shoulder shall be provided adjacent to all new or reconstructed auxiliary lanes. Where no right shoulder exists, the existing auxiliary lane width may be maintained on Interstate and freeway resurfacing, restoration and rehabilitation (3R) projects. However, whenever practical, a 10-foot **desirable** or a 6-foot minimum shoulder should be provided on Interstate and freeway 3R projects.

Shoulder widths for specific types of highways are enumerated as part of the typical sections illustrated at the end of this section. Although it is **desirable** that a shoulder be wide enough for a vehicle to be driven completely off the traveled way, **narrower shoulders are better than none at all.**

Partial shoulders are **sometimes used** when full shoulders are **unduly costly**, as on long span bridges or in mountainous terrain. Regardless of the width, a shoulder should be **continuous where feasible.**

Left shoulders are **preferred** on all divided highways. The **desirable** median shoulder width on a 4 lane and 6 to 8 lane highway is 5 feet and 10 feet respectively. The minimum left shoulder width on land service highways is 3 feet and on a freeway is 4 feet.

Shoulders on structures should have the same width as the usable shoulders on the approach roadways, both right and left. This design is essential on freeways and is desirable on all arterials where shoulders are provided. Long span, high cost structures usually warrant detailed special studies to determine feasible dimensions.

Wherever practicable, full shoulders should be included, but as has been indicated, for some cases, it may be judged proper to use only partial width shoulders.

Analysis: This passage has multiple examples of surplus and vague language that could create liability for the agency. The agency defines the term "practical," which has a commonly accepted meaning of "reasonable" or "sensible." The definition itself does not create liability for the agency, but the agency does not need to define commonly used words. The passage also contains several "shall" and "should" conditions. The agency must carefully consider its use of those words. It is feasible to construct its new roads with the shoulder widths outlined in the passage above, but if those words are used in instructions to staff, all new shoulders must have the enumerated widths or the agency will have fallen below the standard of care outlined in its guidance. To address the vague and surplus words, the passage could be rewritten as follows:

Width of Shoulders. ~~Desirably~~, A vehicle stopped on the right shoulder should clear the pavement edge by at least 1 foot, preferably by and 2 feet if permitted by roadway geometry. If 2 feet are not available due to the limitations of the road, engineering judgment should be used to determine an appropriate width. On land service highways, in difficult hilly or rugged terrain, or in areas where right of way is restricted due to roadside development or environmental factors, a minimum 8-foot-wide shoulder may be provided. On 3R projects, the existing shoulder width may be reduced to 8 feet to provide wider lanes. New or reconstructed shoulders on heavily traveled and high-speed land service highways, especially those carrying large numbers of trucks (250 DHV), where turning volumes are high or dualization is anticipated, should have usable shoulders of at least 10 feet and preferably 12 feet wide if permitted by roadway geometry. Shoulders should be provided adjacent to all new acceleration and deceleration lanes at interchanges, where practical, in major new construction or reconstruction projects along major land service highways having an AADT of 10,500 per lane (DHV of 1,500 per lane) or greater, for the project design year.

"Practical" "Engineering judgment" is defined as given consideration to social, economic, and environmental impacts in concert with safe and overall efficient traffic operations and the application of engineering education and experience. Shoulder widths on freeways and Interstate highways shall be 10 feet minimum. However, where truck traffic exceeds 250 DDHV, a 12-foot shoulder should be provided if permitted by roadway geometry.

A 10-foot shoulder shall be provided adjacent to all new or reconstructed auxiliary lanes. Where no right shoulder exists, the existing auxiliary lane width may be maintained on Interstate and freeway resurfacing, restoration and rehabilitation (3R) projects. However,

whenever practical, a 6 to 10-foot ~~desirable or a 6-foot minimum~~ shoulder should be provided on Interstate and freeway 3R projects.

Shoulder widths for specific types of highways are enumerated as part of the typical sections illustrated at the end of this section. ~~Although it is desirable that a shoulder be wide enough for a vehicle to be driven completely off the traveled way, narrower shoulders are better than none at all.~~

Partial shoulders are sometimes used when full shoulders are ~~unduly costly determined to not be cost effective after a cost-benefit analysis has been conducted~~ as on long span bridges or in mountainous terrain. Regardless of the width, a shoulder should be continuous where feasible.

Left shoulders ~~are preferred to provide a benefit~~ on all divided highways. ~~The desirable~~ Where feasible, the median shoulder width on a 4 lane and 6 to 8 lane highway is 5 feet and 10 feet respectively. The minimum left shoulder width on land service highways is 3 feet and on a freeway is 4 feet.

Shoulders on structures should have the same width as the usable shoulders on the approach roadways, both right and left. This design ~~is essential provides a benefit~~ on freeways ~~and is desirable~~ on all arterials where shoulders are provided. Long span, high cost structures ~~usually may~~ warrant detailed special studies to determine feasible dimensions.

~~Wherever practicable, full shoulders should be included, but as has been indicated, for some cases, it may be judged proper to use only partial width shoulders.~~

City B states as follows in its land development procedure manual:

ROADWAY SHOULDERS

Outside shoulders **shall** be provided on all rural roads. Rural local streets **should desirably** have a 6-foot shoulder, and rural collectors should **desirably** have a 10-foot shoulder. Where right-of-way is limited, the shoulder widths may be reduced to a minimum of 2 feet for locals and 6 feet for collectors. Where significant bicycle and/or pedestrian traffic is expected, consideration should be given to paving 4 feet or more of the shoulder.

Analysis: This policy could be modified as follows to provide the agency with more flexibility:

ROADWAY SHOULDERS

~~Outside shoulders shall be provided on all rural roads. Rural local streets should desirably have a 6-foot shoulder and rural collectors should desirably have a 10-foot shoulder. Outside shoulders provide a benefit to the driver on rural roads. Where feasible, and subject to engineering judgment, 6-foot shoulder widths on rural local streets are used. Where feasible, and subject to engineering judgment, 10-foot shoulders are used on rural collector routes. Where right of way is limited, shoulder widths may be reduced to a minimum of 2 feet for locals and 6 feet for collectors in conjunction with the application of engineering judgment. Where significant bicycle and/or pedestrian traffic is expected, consideration should be given to paving 4 feet or more of the shoulder where feasible.~~

State O's policy letter on the "Standard Design Criteria for Shoulder Width" is reproduced below:

This letter is to clarify the Department's policy on roadway shoulder width for new construction, widening, and reconstruction projects. In 2014 the Transportation Research Board published NCHRP Re-

port 783, Evaluation of the 13 Controlling Criteria for Geometric Design. The research results indicate that shoulder width should remain as a controlling criterion for rural two-lane highways, rural multilane highways, and rural and urban freeways. Furthermore, the research indicates that shoulder width has the largest effect on crash frequency of any of the controlling criteria for rural highways, and that shoulder width has the largest effect on traffic speed of any of the controlling criteria for rural two-lane highways. The Department's policy on roadway shoulder width is published in Chapter 6.5 of the DOT Design Policy Manual.

The normal shoulder width for collectors and arterials with design speeds greater than or equal to 50 mph is 10-ft wide. The normal shoulder widths for multilane freeways and interstates with design speeds greater than or equal to 50 mph is 14-ft overall outside shoulders with 12-ft paved, and 12-ft overall inside shoulders with 10-ft paved. These dimensions have been adopted as standard by the Department and are consistent with the preferable dimensions recommended by AASHTO for higher speed, higher volume, and heavy truck type facilities. Recommended shoulder widths for all other roadway functional classifications and design speeds are listed in the AASHTO Green Book. To ensure decisions on shoulder widths are carefully considered, this letter is to clarify that any decision to use a shoulder width that does not meet the values adopted by the Department will require the prior approval of a Design Variance from the Chief Engineer. A decision to use a shoulder width that does not meet the "minimum values" recommended by AASHTO will require the prior approval of a Design Exception.

Analysis: State O does not have to explain the purpose of its policy to its staff. Language such as "shoulder width has the largest effect on crash frequency of any of the controlling criteria for rural highways, and ... shoulder width has the largest effect on traffic speed of any of the controlling criteria for rural two-lane highways" can be problematic in a lawsuit if the roadway in question does not have shoulders on a rural road that is the subject of the litigation. The language is excessive and provides information that is unnecessary for the practitioner to review. Instead of providing an explanation about the purpose of the policy, the agency could simply provide guidance as to how shoulders should be constructed and at which locations.

Redundant or surplus language should be removed during the revision process. An example is found in State O's policy as follows: "These dimensions have been adopted as standard by the Department and are consistent with the preferable dimensions recommended by AASHTO for higher speed, higher volume, and heavy truck type facilities." Since the dimensions are adopted in the policy, clearly, they are preferable.

Example B: Vision Zero.

Vision Zero is a concept that has been accepted by hundreds of cities in the United States. The agencies work towards the goal, based on data-driven strategies, of achieving zero serious injuries and deaths on their roadway systems.

City C makes this statement on its website:

The primary responsibility of the City government is to ensure the safety and well-being of all of the cities' residents. One death on our streets is one too many.

Analysis: This language suggests that the government itself is “ensuring” the safety of all its residents. This is not an appropriate legal standard of care.

The sentence could be eliminated entirely or replaced with a sentence that simply sets out the facts, such as

In the last ten years, there have been 74 deaths and 542 serious injuries on our roads. Our goal is to reduce the number of deaths and serious injuries every year.

Language on the City D Vision Zero website reads as follows:

The status quo is unacceptable. The City must no longer regard traffic crashes as mere ‘accidents’ but rather as preventable incidents that can be systematically addressed. No level of fatality on city streets is inevitable or acceptable ... the city will use every tool at its disposal to improve the safety of our streets.

Analysis: This language could be used by a plaintiff in a personal injury suit based on a dangerous condition of a road or sidewalk in a number of ways. If the incident that spurred the lawsuit occurred prior to the implementation of the Vision Zero policy, plaintiff can logically make the argument that the city could have taken more and different steps in the past to prevent injuries on its roads and sidewalks and that it was negligent for failing to take those steps at an earlier time. Or, if the incident that spurred the lawsuit occurred after the implementation of the Vision Zero policy, plaintiff could take the position that the injury was preventable, the city had notice of the issues, and the problems they should have been addressed before it occurred.

On its website, the city E of invites citizens to use its online tool to “identify and report transportation hazards and dangerous traffic behaviors that could lead to fatalities or life changing injuries on our streets.”

Analysis: Once it has received these reports, the city presumably has notice of conditions that the public has alleged are dangerous and must act on that information. Use of these phrases can lead to unintended liability if the city requests comments and information such as this and does not act in a timely manner to address the reported conditions.

G. Match Field Conditions to Language in Guidance

A conflict between written policy and the application of the policy in the field will usually be resolved in favor of the plaintiff rather than the DOT. Language in the policy or guidance must match the practices in the field and all instructions should be written so that they are easy to understand and interpret. Language should be reviewed periodically for liability issues and to make sure that the written guidance is aligned with current practices.

Example A: Timing of Repairs.

Some roadway conditions, like a missing or damaged stop sign, require immediate attention, while other items such as a damaged chevron in a series of twelve can be part of a scheduled repair. The repair prioritization policies of State P and County A are analyzed below.

State P prioritizes repair of components that provide for the safety of the traveling public into categories such as priority one, two, and three. It also provides sub-categories within its priority one system for guardrail, concrete median barriers, and crash attenuators. Those levels of service are:

Desirable. Maintain all safety appurtenances to original design standards; all hardware functional; no noticeable appearance defects.

Acceptable. Maintain all safety appurtenances to original design standards; all hardware functional; few noticeable appearance defects.

Tolerable. Maintain all safety appurtenances to original design standards; all hardware functional; readily noticeable appearance defects.

Analysis: The words “desirable,” “acceptable,” “tolerable” and “defects” are all expressions of the author’s opinion. They do not convey directions, examples, or a clear message. Instead of opinion words, a list of examples or photographs could be used to convey the message intended by the author. Another option is to exclusively use a priority system, such as priority A, priority B, and priority C and give examples of those situations. Regardless of the priority system used, care must be taken by the agency to make sure that the conditions or features of the road that are identified within the priority system are in compliance with the written expectations of the agency.

County A’s website provides instructions to the public on how to report conditions that may require maintenance. Pertinent parts of the website are set out below, along with recommendations for changes to it.

Maintenance Requests

If a County road is damaged, a sign is down/missing **and/or there is an apparent need for maintenance or repair** (i.e., pothole, drainage ditch, etc.) contact the County Highways Division ... or fill out our Maintenance Request Form.

Drainage Ditches

Approximately 65 miles of ditch-work is performed by highway maintenance crews annually ... ditches are provided for the controlled removal of surface water from the right-of-way. ... **It is recommended that roadside ditches be cleaned on a minimum eight (8) year cycle** and following major storm events. **Our goal is to limit the number of flooding incidents** by keeping drainage-ways clear with regular maintenance and cleaning.

Shoulder Maintenance

A shoulder is the portion of the roadway adjacent/contiguous with the paved travel-way and may be composed of gravel, crushed rock, bituminous, surface treatment, or grass on native soil. An integral part of the DPW&T maintenance program is the inspection ... of roadside shoulders. This activity is typically performed twice a year; between April 1st to July 1st and September 1st to November 1st. **Well designed and properly maintained shoulders are also extremely advantageous and necessary on rural roads** because they: essentially serve as structural lateral support for the roadway surfacing; provide space for the occasional motorist who needs to stop for mechanical reasons; provide lateral clearance for signs and guardrails; allow space for oversized farm vehicles, pedestrians, bicyclists and mail vehicles use; help to discharge drainage away from pavement to minimize pavement breakup; ease performance of maintenance operations

such as snow removal; and can improve sight distance. For this reason, shoulders on low volume roads are often constructed of gravel.

Accidents are likely to occur where drivers are called on to make decisions under circumstances where their vehicles are unable to respond properly. When a vehicle leaves the roadway, the driver no longer has the ability to fully control the vehicle. Maintaining useable shoulders along rural roads helps to provide a clear recovery and maneuver room ("space") to escape potential accidents or reduce their severity. **The two (2) basic maintenance problems we face are:** shoulder "drop-offs" which should be scheduled for maintenance and immediate repair if the "drop" from the edge of pavement is greater than 2 inches; and shoulder "build-up" which is handled by cleaning the shoulders, especially after the winter season, and berm removal operations prior to paving.

Drainage Structures

Approximately 3,000 linear feet of deteriorated metal cross pipes are replaced by our Highway maintenance crews each year. Inlets require continual maintenance attention due to clogging with leaves, underbrush, sediment, debris and even ice. **If not unplugged immediately, the resulting water ponding can create a traffic hazard on the roadway,** soft ground conditions beneath the pavement or wet conditions within yards on private property. Water infiltration into the sub-grade can create a myriad of **structural problems/failures** within the pavement surface.

Potholes and Sinkholes

It is the goal of the Highway Maintenance Division to maintain County streets in good repair, including repair of potholes and sinkholes. Once County Roads Maintenance staff are notified of a pothole, a crew is dispatched to repair the defect. ... During the winter months, even though Public Works may fill a pothole, the water underneath can freeze up that night and push the "cold patch" right back out again. This is just a condition of the winter storm season and cold temperatures.

Sidewalks

The County Highways Division keeps a list of **sidewalk problem locations** that have been reported by residents. If the sidewalk is settled, but not broken, the sidewalk will be temporarily patched with asphalt **if there is a tripping hazard.**

Maintenance Priorities

Please call 911 for dangerous roadway or pedestrian emergencies such as: **Dangerous obstructions** in roadways (debris, trees or large animal carcasses); downed utility lines such as electric and phone; Accidents; Roadway(s) flooding; Snow and ice conditions; Hazmat spills (i.e. gasoline, oil, etc.); Traffic or pedestrian signal malfunction; Traffic control (stop and speed limit, etc.) signs missing or damaged.

High Priorities

During normal working hours, please call ... or fill out our Maintenance Request Form. After normal working hours or on weekends, please telephone ... Communications dispatchers will then call out repair crews for high priority items.

Examples are: **Traffic visibility problems resulting from trees or shrubs blocking the view of oncoming traffic;** Missing stop signs, speed limit signs and advisory signage; Sinkholes; damaged pavement markings/stripping/stop bars; Animal carcass obstructing travel lanes; Flooding in roadside ditches or in/across roadways; Debris removal after severe weather events and snow removal.

Medium & Routine Priorities

Normal priority items can be phoned in ... e-mailed to our Highway Maintenance Division Manager or simply fill out our Maintenance Request Form.

Pothole and guardrail repairs

Pavement surface maintenance

Sidewalk and shoulder damage

Street sweeping and vacuuming

Removal of **non-dangerous** items from roadways or rights-of-way

Analysis: The county is educating its population about roadway conditions, but in the process of education, it provides information that could expose it to litigation risk. Much of the information is interesting and informative regarding the inner workings of the agency, but it is surplus to the information that is relevant to the needs of the traveling public and sets up expectations for maintenance of the roadway which may not be attainable.

The explanations of road operations and characteristics provide a multitude of opportunities for plaintiff. A discussion about the consequences which may occur when a vehicle leaves the roadway should not be found in a maintenance policy or on an agency's website. The statements made in the passage diminish the role of driver error in the sequence of events.

The passage explains that the agency plans to clean its ditches on an eight-year cycle and identifies a regular schedule for maintenance. If these actions do not occur in the field, the agency has opened itself up to potential liability for its failure to comply with its policy. Additionally, the agency has admitted that it has a list of "problem" sidewalks that it has not fixed.

The passage also contains a lengthy discussion of shoulder maintenance that contains surplus language such as "properly maintained shoulders are extremely advantageous and necessary on rural roads ... they serve as structural lateral support for roadway surfacing ...". The purpose of the website is to provide information to the public about how and when to contact the agency to report road conditions, not provide an explanation of the reasons that roadways have been constructed.

This passage should be rewritten instead of revised. The passage could be reduced to simply provide contact information for the departments that perform repairs during and after business hours and give examples of the conditions of the road that merit reporting as follows:

Maintenance Requests

Please contact the agency via e-mail or phone during regular business hours if you observe any of the following conditions:

Trees or shrubs blocking the view of oncoming traffic;

Debris on shoulders or near the road;

A pothole or sinkhole;

A clogged drainage ditch;

Damaged pavement markings/stripping/stop bars;

Shoulder conditions where there is a difference in elevation between the traveled way and the shoulder in excess of two inches;

A settled or broken sidewalk.

Please call 911 for roadway conditions such as:

Objects in roadways such as debris, trees or large animal carcasses;
 Downed electric or phone lines;
 A collision;
 Roadway(s) flooding; snow and ice conditions;
 Liquid such as gasoline, oil, on or near the roadway;
 Traffic or pedestrian signal malfunction;
 Missing or damaged red traffic control signs such as stop and speed limit signs;
 Animal carcass obstructing travel lanes;
 Flooding in roadside ditches or in/across roadways.

H. Development of Liability Neutral Guidance

Technical writing can be easy to understand and provide clear and accurate guidance to the reader who needs to absorb and use the information. The following information is intended to be a starting point for drafting and revising manuals and policies, safety studies, and research papers.

1. Determine Purpose of Document

As a preliminary consideration, it is important to understand the purpose of the document that is being drafted or revised. Many of AASHTO's published works such as the Green Book and the RDG are used as guidance by DOT engineering and technical staff. These publications are generally accepted by the transportation industry as reliable, accurate, and authoritative. Before a decision is made to supplement those periodicals with information applicable only to the DOT itself, the agency must first decide that the supplementation is necessary and that the changes will assist staff in interpreting the intent of the guidance. Care should be taken to keep from conflicting with or exceeding the requirements of generally accepted guidance based on engineering judgment. If the decision is made to exceed the generally accepted guidance, documentation of those explanations should be kept.

For instance, the MUTCD³² does not recommend a set distance from the lane of travel of a road for a stop sign at a wide throat intersection. It merely provides that the sign should be identifiable and placed a minimum distance of between six and twelve feet from the adjacent roadway. If a state DOT institutes a prescribed minimum or maximum distance from the road for a stop sign which is different from the MUTCD guidance, it should have a well-documented good reason, based on engineering judgment since it removes flexibility from the agency.

2. Guidance for Drafting Technical Documents

In response to the survey, Iowa provided the "5 C's" methodology which can be found in Appendix B.³³ It is a methodology

with catchwords that begin with "c" that promote clarity in writing. The suggestions therein can be a helpful reference to the technical writer.

Once the purpose of the policy or standard is determined, the audience must be considered. Technical guidance is typically intended for technical writers such as engineers. However, the following suggestions to the technical author are equally applicable to technical and non-technical writing:

- a. Possess a comprehensive understanding of the subject before drafting a policy about it.
- b. Allow sufficient time to draft and rewrite the document.
- c. Know the audience. If the reader is likely a college graduate and engineer, technical words can be used if they are defined or commonly used. However, it is important to provide guidance in language that is easy to understand for the average person.
- d. When possible, sentences should be short, containing one idea per sentence. This is for ease of comprehension.
- e. Edit so the passage does not contain unnecessary or duplicative words.
- f. Use short, simple words when possible.
- g. Use the active voice. It is more interesting to read.
- h. Use words that do not suggest a bias or preference. Instead, use a neutral, objective, impartial tone.
- i. Provide information and education on a topic, not conclusions or opinions, using words that can be verified through evidence and facts.
- j. Provide the reader with solutions, options and alternatives, or instructions that can be carried out, rather than using the words "must", "should" or "shall."
- k. During and at the end of the process, read the passage out loud to make sure the passage makes sense.
- l. Ask a colleague to review the document for accuracy of content and clarity.
- m. Request legal counsel to review document for legal sufficiency. Many agencies require counsel to review and approve changes.

3. Starting the Revision Process

When an agency decides to review and revise its technical guidance, it is taking on a potentially lengthy process. Ideally, the department or division that is most familiar with the guidance will develop a schedule to review it all. This review should occur at least every other year. The review should necessarily include the department or division responsible for the guidance as well as other departments or divisions that implement or contribute to the work that is described in the policy. For instance, if a policy on adequacy of highway fencing is under review, the departments responsible for the initial installation of the fencing as well as those responsible for the maintenance of the fencing should be involved in the review of that policy. Legal counsel should also be involved in a review, especially if the guidance has been scrutinized in a lawsuit or is likely to be the basis of a lawsuit.

³² MUTCD, Figure 2A-2, Chapter 2, <https://mutcd.fhwa.dot.gov/kno-overview.htm>, (last visited June 15, 2019).

³³ The 5 C's are a methodology used by Iowa DOT in its Style Guides for Writing Specifications. The concepts are the use of concise, clear, complete, correct, and consistent terms. It is another excellent resource and is included as Appendix 2.

If major changes are proposed to a policy, the agency should ask their counterparts in FHWA to review and comment on the proposed changes.

In addition to the considerations outlined in the guidance for drafting tips outlined in the previous section, the following factors may be considered during the revision process:

- a. It may be easier to start over with a new policy rather than try to modify an existing policy. This is true when the policy requires major revisions.
- b. Although many of the recommendations in this report address the importance of neutral language, there are times that the words “should”, “shall” and “must” are appropriate. There are times that the words “should” or “shall” are the only words that can convey the importance of the recommendation. These words should not be eliminated from the text of any policy, manual or research study if the recommendation is necessary for the safe operation of the roadway and there is no room for engineering judgment.
- c. When revising a policy, internal consistency must be maintained. For instance, a DOT may expect bicycles to be in use on all its highways and instruct its staff to plan for bicycle use on all roads in a technical memorandum relating to shoulder width standards. If the agency requires a 4-foot shoulder for bicycle use, it should not, in another portion of that technical memo, allow 2-foot shoulders on collector routes.

IV. MEDIA TRAINING

Media training is essential for any staff member who has the potential to be department spokesperson. Media training is recommended for most middle and upper management positions. Basic guidelines for a successful media interview follow:

1. Prepare in advance. Find out the topics that will be covered in the interview and know who will be conducting it and whether it is for print or television. Be able to provide factual information, such as statistics, dates, or dollars spent.
2. Identify the major points of discussion and plan to present accurate and timely information in an understandable way. Use words that your audience will understand. Be prepared and plan different ways to convey the message. Memorize key points and be ready to explain them.
3. Plan the specific words that you intend to use. Spokespeople can be mis-quoted, and quotes can be taken out of context, but a well-prepared spokesperson can avoid a trap.
4. Provide the information that has been requested. Share information that is useful but be aware of the potential for disaster. Do not stray very far from message you intended to provide.
5. Do not answer a question that is not clear. Ask for a clarification, or for the question to be reworded. Do not guess. Tell the reporter that information will be provided later if necessary.
6. Practice in front of a mirror and with friends, family, or colleagues.
7. Dress appropriately for the context of the interview. The appropriate attire for a construction zone, a public meeting, and a television interview varies considerably.
8. If a statement has been made by the reporter that is false or misleading, address it. Otherwise, remaining quiet may send the message that you agree with the statement. Beware of statements that are mostly true or correct, yet contain an error or falsehood. A phrase such as “before we change subjects, please let me clarify” can be used to redirect the conversation.
9. Take a breath. Don’t rush to answer a question, especially if it is a difficult one. With some practice, experienced speakers are able to control the message and the interview.
10. Ask for help. Media training classes and workshops are available all around the country. DOT community outreach staff can also provide training and assistance.

V. RECOMMENDATIONS FOR LIABILITY NEUTRAL DOCUMENTS AND COMMUNICATION STRATEGIES

The recommendations of the research panel are summarized below.

A. Choose Each Word Carefully

The intent of this publication is to encourage the use of liability neutral language in safety studies, research papers and DOT policies and manuals. There are times that the words “should” or “shall” are the only words that can convey the importance of the recommendation. These words should not be eliminated from the text of any policy, manual or research study if the recommendation is necessary for the safe operation of the roadway and there is no room for engineering judgment. As noted in Section III, the following list of words is comprehensive but does not include all the words that can create unintended liability or responsibility for an agency:

Better	Insufficient
Clearly	Is needed
Concern	Mandatory
Danger/Dangerous	Obstacle
Deficient	Poor
Edge/Shoulder Drop off	Problem
Ensure	Require
Essential	Risk/Risky
Excessive	Shall

Hazard	Should
Hot Spot	Trap
Imperative	Unsafe
Inadequate	Worse

Even some “liability neutral” words may create liability for the agency, given the context in which they are used. Therefore, neutral words must be considered in context to determine the risk of liability with their use. A list of illustrative words that provide flexibility is provided below.

Application of engineering judgment	Guideline
As soon as practicable	May
Can	Normal
Candidates for shielding	Potentially contributing factors
Consider	Roadside “feature” or “condition” or “object” or “device” rather than “hazard” or “risk”
Criteria/factors that may be considered	Strategy
Could	Toolbox
Difference in elevation rather than edge or shoulder drop off	When/Where feasible
Factors that contribute to the probability	

B. Scheduled Policy Reviews

Instructional manuals should be subjected to a scheduled comprehensive technical review to search for guidance and phrases that are confusing or inaccurate. Agency personnel who implement the policy must be involved with its review. Counsel should be actively involved in revisions of policy.

C. Negligence Per Se

An act of an agency employee may be considered negligent because that act violates a rule or law. If a policy or manual has the effect of a rule within an agency or has been adopted as a regulation, violation of the policy language may equate to negligence per se, which subjects the agency to liability as a matter of law if policy language is not followed.

D. Vague Phrases Should Not Be Used

Phrases such as “consideration should be given” and “wherever possible” seem to provide flexibility to agency staff with responsibilities of reading and interpreting policy. The phrase “wherever possible” and similar phrases should not be used.

While they emphasize the importance of the instruction, they also in essence require action to be taken. The use of the terms “strategies” or “guidelines” or “toolbox” do not have the same legal effect as the words “standards” and “policy” and should be considered as substitutes for those words.

E. Protections Under 23 U.S.C. § 409

Studies that contain information that an agency has gathered to evaluate highway safety appurtenances may be helpful to the agency in identifying areas that require attention such as improperly placed guardrail posts or guard cable which has not been properly maintained. 23 U.S.C. § 409 provides for the protection of reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railroad-highway crossings. This law provides that the data gathered for these purposes shall not be subject to discovery or admitted into evidence in a court proceeding or considered for other purposes in any action for damages arising from an occurrence at a location that is mentioned or addressed in those reports, surveys, schedules, lists, or data. Safety studies in the custody of a DOT should not be published or allowed into the public domain.

F. Surplus Language

Surplus language can be words that are redundant or duplicative or words that seek to explain a concept that does not require explanation. Surplus language can impact the clarity of an idea or provide a plaintiff’s lawyer with a theory of negligence that would not have been apparent from a clearly written sentence.

G. Match Field Conditions with Language in Guidance

A conflict between written policy and the application of the policy in the field will usually be resolved in favor of the plaintiff rather than the DOT. Policy or guidance language must match the practices in the field and all instructions should be written so that it is easy to understand and interpret for all employees. Language should be reviewed periodically for liability issues and to make sure that the written guidance is aligned with current practices.

H. Internal Communications of the Agency

Emails are frequently and commonly used at the time policy changes are under consideration. Texts, emails and other communications should include only facts that are presented in an understandable, factual and neutral manner. They may be a good source of documentation of the thought process of staff as they review and revise policies.

VI. CONCLUSION

A state department of transportation is charged with keeping its highways in a reasonably safe condition when the roads

are used as intended by the agency. In a lawsuit, a plaintiff must prove that a roadway agency was negligent in order to show that the agency is responsible for his or her injuries. One of the easiest and most effective ways to prove the negligence of an agency is to show that it did not comply with its own standards or guidelines or those of a commonly used industry publication. During the course of litigation, the language of any policies and the practices of the agency that are relevant to the litigation will be closely examined. If counsel for the plaintiff finds that a policy or guideline was not followed, it will be easy for a jury to find some fault on the agency. If the guidance is hard to understand or unclear in any way, uses language that does not appropriately describe the actions that should have been taken or the methodology that was intended to be used, the agency has opened itself up to unintended liability.

APPENDIX A—SURVEY LETTER AND QUESTIONS

May 1, 2019

Dear State DOT representative:

The National Cooperative Highway Research Program (NCHRP) has initiated a legal research study on the topic of liability neutral language used within technical and non-technical publications, manuals, asset management plans and internal and external communications such as e-mail and social media posts. In the legal system, transportation engineering and non-engineering documents can be used by litigants and courts as evidence which bears upon or identifies the standard of care or duties of transportation agencies. Parker Corporate Enterprises, under the Transportation Research Board's Cooperative Research Program, is conducting this Project.

The enclosed survey has also been sent to other state transportation agencies. We realize that you receive many inquiries like this and that they take up a lot of your time, but the success of this project depends on your input. Therefore, we sincerely appreciate your efforts in sharing your experience with others who can benefit from it.

The survey requests information from your agency which will assist with the study. Your counsel or risk management staff will likely be able to provide the most accurate responses to the survey. Results will be reviewed and compiled for the publication of a research document which is tentatively titled "Guidelines for Drafting Liability Neutral Transportation Engineering Documents."

Please contact Terri Parker, at parkercorp269@gmail.com or 417-839-5119 with questions or to return this survey. If your responses are too voluminous to attach, phone interviews or other means of collecting this information can be arranged. Additionally, this survey can be distributed in other formats for ease of responses.

Thank you again for your assistance with this project.

Terri Parker
Parker Corporate Enterprises

SURVEY

Name and Title _____

Name of Agency _____

Physical and E-mail Address _____

Phone Number _____

Does the agency have an internal engineering or policy guide(s)? Is the policy directed to the public or to an internal audience? What is it called? How frequently is it updated or reviewed?

Please provide the web citation if available.

Does the agency have any written guidance for its employees on writing standards such as a requirement for neutral or fact-based writing and communications? If so, please identify and provide.

Does the agency provide media training for its employees? If so, please provide a copy of the training.

Does the agency have a list of words or phrases that should or should not be used in technical or non-technical writing? Or a style guide? If so, please provide it or the citation to it or a pdf. How is the material disseminated?

Has the agency been involved in litigation where the agency's engineering policies or emails or social media posts were analyzed by the parties to provide an indication of negligence or failure to comply with industry standards? For instance, the agency has a maintenance policy of "no loose gravel" on a road but has been sued for allowing loose gravel to remain a day or two after a chip and seal project. Or what if the agency directs its engineering staff to provide a clear zone on particular types of highways but does not outline a clear methodology for obtaining a clear zone?

If your agency has been involved in litigation relating to an alleged failure to follow generally accepted guidelines or its own policy, please provide details of the cases or citations to appellate cases. Also, please provide contact information for counsel that worked on the case.

Does the agency provide formal or informal training for technical and other writers? If so, please identify or provide a copy of the training

If available, please provide examples of asset management reports, manuals, studies, research documents or other documents that illustrate the use of non-neutral language.

Thank You!

APPENDIX B—IOWA DEPARTMENT OF TRANSPORTATION FIVE C'S

The Five C's of Construction Specification Writing, Iowa Department of Transportation

The Five C's. For specifications to be effective, they must be concise, clear, complete, correct, and consistent. These are referred to as "the Five C's".

- **Concise.** Use simple words and try to keep sentences to 25 words or less. Try to limit paragraphs to five sentences or less. Limit each sentence to one thought and each paragraph to one topic.
- **Clear.** Avoid words or sentences that can be interpreted in more than one way. For example, words like "accurate," "clean," "reasonable," and "sufficient" can mean different things to different people. Avoid using "and/or." Instead of "A and/or B," use "either A or B, or both." Avoid repeating requirements or providing reasons to back up a requirement. Do not restate information found in the plans.
- **Complete.** Use the five-part format:
 - DESCRIPTION. A short and concise statement of the work required.
 - MATERIALS. A list of the materials required to complete the work.
 - CONSTRUCTION. A description of the requirements for completion and acceptance of the work.
 - METHOD OF MEASUREMENT. A description of the procedures used to measure the pay items. Include units of measurement, how items will be measured (plan quantity, placed, etc.), and measurement factors such as temperature, waste, spillage, etc.
 - BASIS OF PAYMENT. A definition of pay items needed to complete the work. Include incidental items.
- **Correct.** Thoroughly research information to be sure that it is correct. Make sure references are correct and up to date. Make sure spelling, grammar, and punctuation are correct.
- **Consistent.** Be consistent with punctuation, grammar, word usage, format, referencing, and the use of abbreviations and numbers.

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MICHELLE S. ANDOTRA provided liaison with the Federal Highway Administration, ROBERT J. SHEA provided liaison with TRB's Technical Activities Division, and GWEN CHISHOLM SMITH represents the NCHRP staff.

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed, and implementable research is the most effective way to solve many problems facing state departments of transportation (DOTs) administrators and engineers. Often, highway problems are of local or regional interest and can best be studied by state DOTs individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation results in increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

Recognizing this need, the leadership of the American Association of State Highway and Transportation Officials (AASHTO) in 1962 initiated an objective national highway research program using modern scientific techniques—the National Cooperative Highway Research Program (NCHRP). NCHRP is supported on a continuing basis by funds from participating member states of AASHTO and receives the full cooperation and support of the Federal Highway Administration (FHWA), United States Department of Transportation, under Agreement No. 693JJ31950003.

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